



**ELECTRICAL  
PANEL RADIATOR  
USING AND INSTALLATION  
MANUAL**



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## GENERAL INFORMATION

**Preferring MAKTEK ELECTRIC PANEL RADIATOR** which you would use safely for a long time:

We are proud to inform you of the we bring latest technology and the harmony of contemporary and aesthetic design to your homes. This product, which has been the result of many years research, is designed in the same way as conventional hot water radiators, the most common and widely accepted method of centralized system heating in the world, and has the advantage of not having requirements such as installation connection, pump, boiler, system water.

The radiator is heated by the heating elements in the system by heating the heat transfer fluid between the panels. The heat transfer surface which is expanded by the converters allows obtained heat to pass through the radiator and then to the place with homogenous and maximum efficiency.

This guide is prepared for receiving the highest efficiency from this product. Read all the warnings in this manual before using the device. Please contact only MAKTEK AUTHORIZED SERVICE in case of any problem with the radiator.

You should take a few minutes to read the SAFETY WARNINGS section of this manual before you use the appliance for your own safety and others' safety.

**PLEASE;** Carefully keep this manual in case you need it.



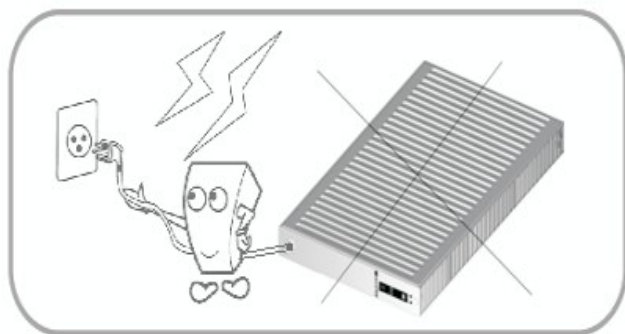
**We are stronger with you...**

**TURKISH PATENT [ • ] INSTITUTION**

## SAFETY WARNINGS !

**When using the device;** it is always necessary to take the following precautions to reduce the risk of burns, electric shock, injury of persons and to ensure that the device is covered by the warranty.

- 1-** Read all the information in this manual before using the appliance
- 2- ATTENTION:** Do not attempt to open the appliance yourself or open the appliance against the RISK OF ELECTRIC SHOCK.
- 3-** Radiator surface is hot while it is running.. Do not touch hot surfaces with your bare hands against the danger of burning. If possible, keep at least 50 cm away from objects such as furniture, pillows, bedding, paper, clothes, curtains made of fusible, fusible materials with radiator heat.
- 4-** Pay special attention to children near the radiator. Do not leave them free.
- 5-** If you do not use it for a long time (eg in summer), be sure that the radiator is unplugged.
- 6-** Never use the device with damaged plugs, electric cables. If the device is malfunctioning for any reason, do not try to turn it on again or try to open for repairing. Call MAKTEK AUTHORIZED SERVICES for electrical adjustment, repair, maintenance on the mechanical side.
- 7-** The appliance must never be placed in open areas where the rainwater can be exposed.
- 8-** Do not use the device in a bathroom, laundry or other moist plasec. Do not mount the device on any water basin in a bath tub and never immerse it in water.
- 9-** To stop the operation of the device, first set the temperature control knob to '0' position in MECHANICAL THERMOSTATIC MODE. Then turn the on / off switches to the closed position. DIGITAL TEMOSTATED MODEL Press "ON-OFF" button.
- 10-** Do not interfere with the electrical connections of the device for any purpose.
- 11-** Never use extension cables which may create a risk of burning and which may be overheated.
- 12-** Never hold the appliance plug with wet hands or objects.
- 13-** Use a fuse that is at least 30% larger than the current drawn by the radiator in the electrical installation. (see page 3, Table-1)
- 14-** Looseness in the electrical connection points can cause overheating in the cables. In such a case, contact the authorized service immediately.
- 15-** Do not use the device if it has fallen and has gotten wet.
- 16-** Do not use the radiator with other electrical appliances in the same socket. (the receptacle capacity may not be sufficient)
- 17-** In case of cleaning and maintenance, the appliance must be switched off and the appliance must be disconnected from the socket.
- 18-** Use a dry cloth when you want to clean the appliance. Do not use abrasive detergent etc.
- 19-** Use the radiator only in accordance with the information in this manual. The manufacturer is not responsible for any use that could cause personal injury or damage to the device.



**WARNING: DO NOT use the radiator NEVER in an leaning position.**

**IMPORTANT: Always operate the radiator with a grounded socket.**

## MEASURES AND CAPACITIES

MODEL	Power( kw )	Measures ( G*Y*B ) mm	CURRENT DRAW ~ ( A )
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<b>TYPE 3100</b>	1,2	98 * 300 * 1000	4,5
<b>TYPE 3120</b>	1,6	98 * 300 * 1200	7
<b>TYPE 3140</b>	2,0	98 * 300 * 1400	9

<b>TYPE 4100</b>	1,4	98 * 400 * 1000	6
<b>TYPE 4120</b>	1,6	98 * 400 * 1200	7
<b>TYPE 4140</b>	2,0	98 * 400 * 1400	9

<b>TYPE 5100</b>	1,6	98 * 500 * 1000	7
<b>TYPE 5120</b>	1,8	98 * 500 * 1200	8
<b>TYPE 5140</b>	2,2	98 * 500 * 1400	10

<b>TYPE 6060</b>	1	98 * 600 * 0600	4
<b>TYPE 6080</b>	1,4	98 * 600 * 0800	6
<b>TYPE 6100</b>	1,8	98 * 600 * 1000	8
<b>TYPE 6120</b>	2,2	98 * 600 * 1200	10
<b>TYPE 6140</b>	2,6	98 * 600 * 1400	12

## WALL MOUNTING OF THE RADIATOR

### 1- MOUNTING OF CARRIER CONSOLES ;

Using a 10 mm drill bit on the wall where the radiator is to be mounted, 4 holes should be drilled with the measurements in figure-1 and indicated by 1-2-3-4 numbers.

Vertical hole distances In Figure 1,

Horizontal distance between carrier brackets Figure 2,

The installation method of the mounting brackets are given in figure 3.

The installation of the radiators on the mounting brackets are shown in figures 4,5 and 6.

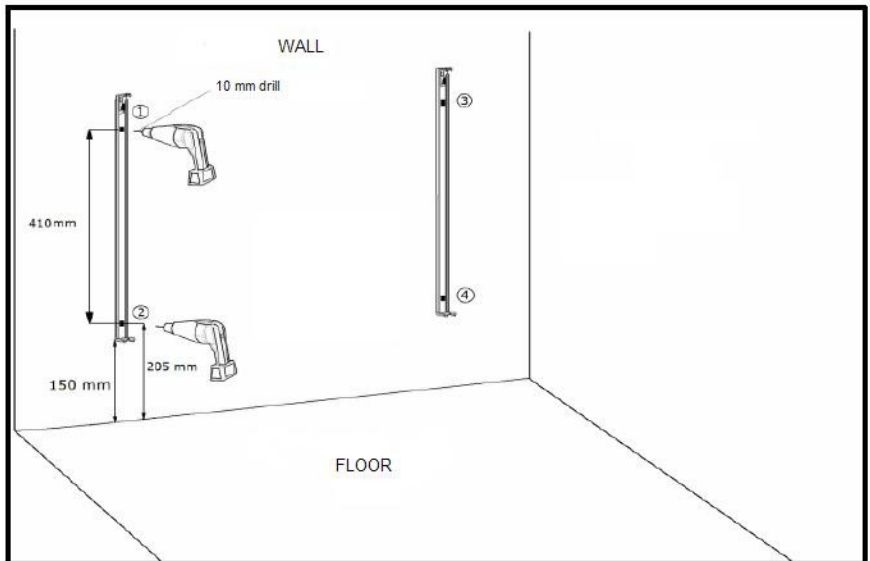
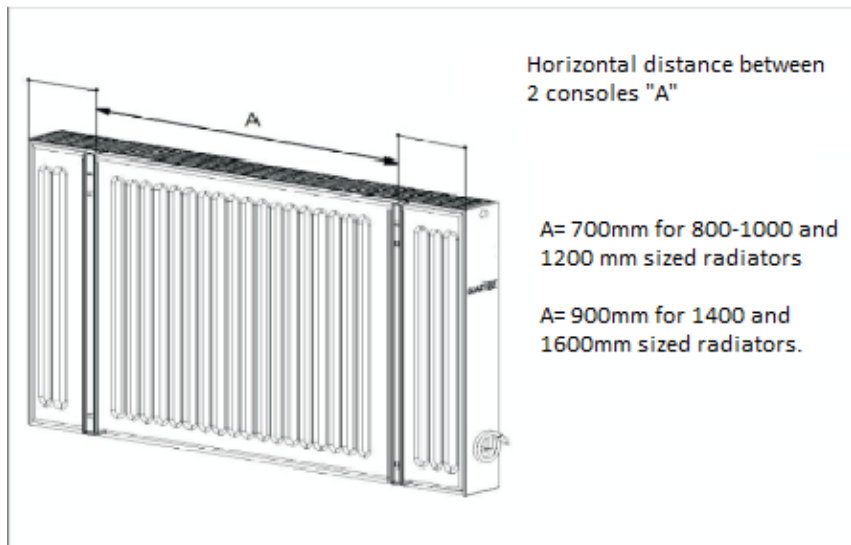
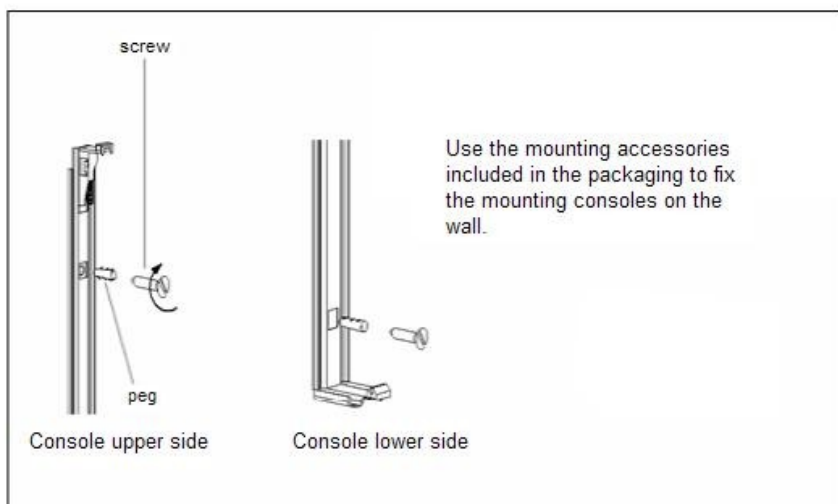


Figure - 1

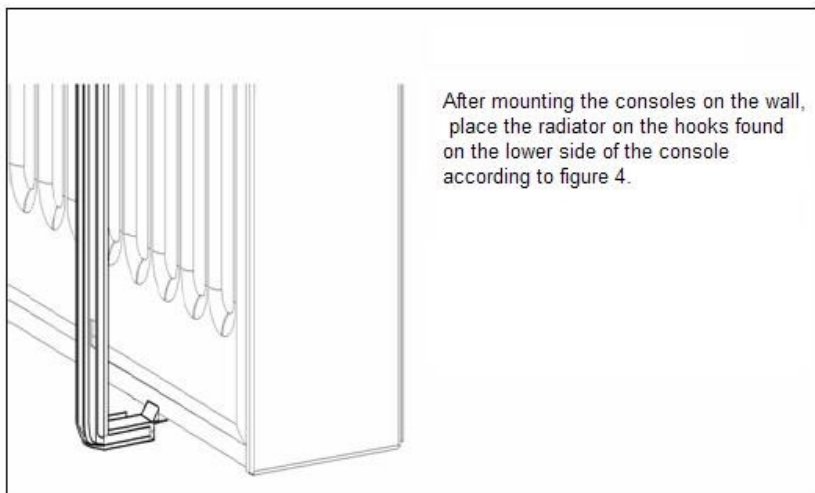


**Figure – 2**

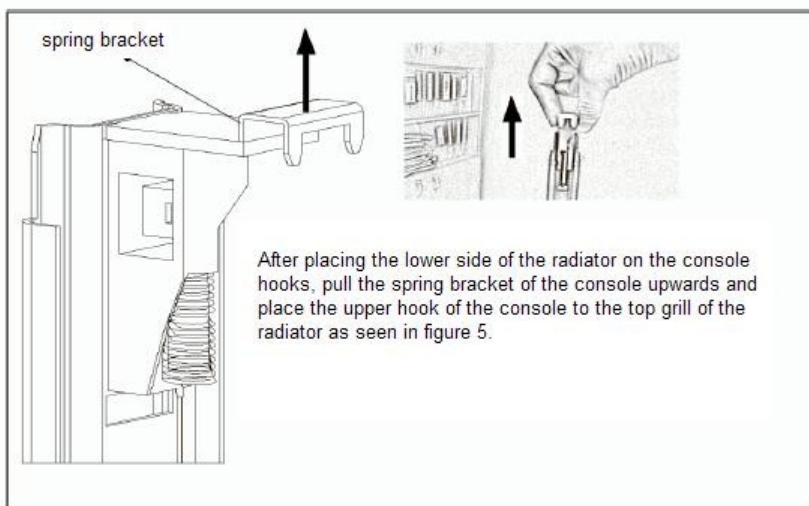


**Figure- 3**





**Figure- 4**



**Figure- 5**

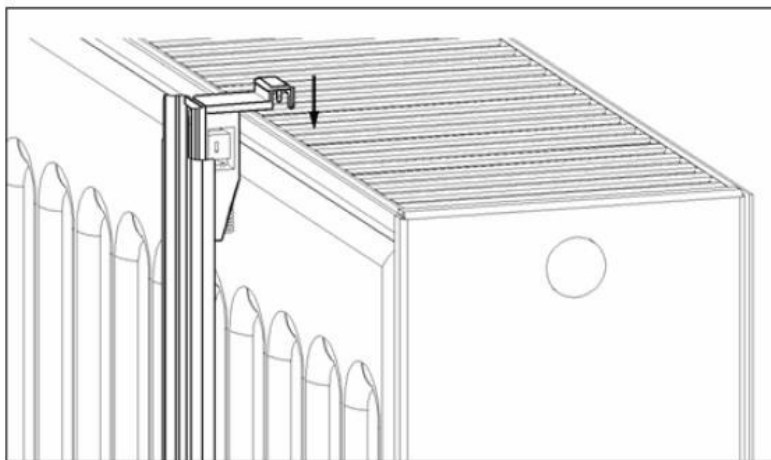


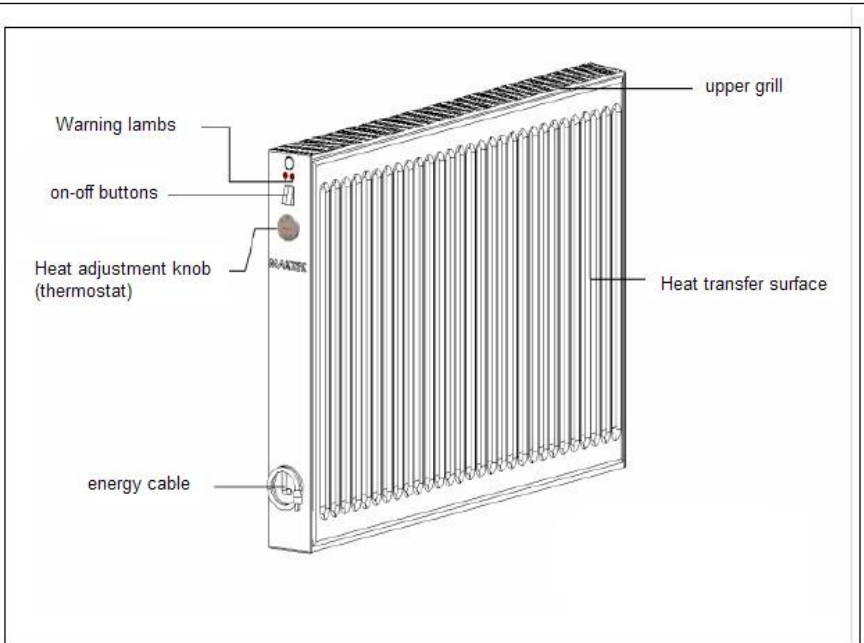
Figure- 6

## BEFORE FIRST START

Radiator works with 230 V. 50 Hz. alternating current. Do not connect the device to an incorrect power source. Make sure that the mains voltage matches the operating voltage of the radiator. Always connect the radiator to an insulated and grounded power line.

The mains cable used in the radiator has a cross section of  $3 \times 2,5 \text{ mm}^2$  and has a resistance for maximum flow 20 amperes flow. If this cable will change, please make sure that the new cable is the suitable one. This cable can only be changed by the manufacturer or by specialist technical staff.





## FIRST START

**IMPORTANT**\_: This manual must be read and stored before operating the device.

Once you have made sure that the radiator is properly installed in the wall and that you have read all the information and warnings in this manual, put the radiator plug in the prize.

Switch the power switch to "I" (on) indicated by Figure-1 and make sure that the lights are on.

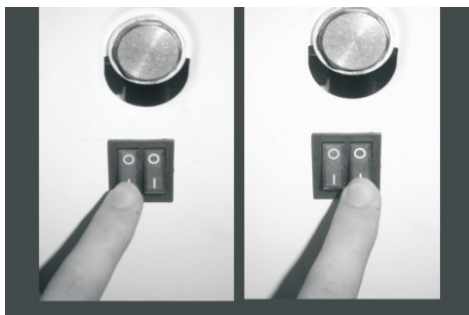
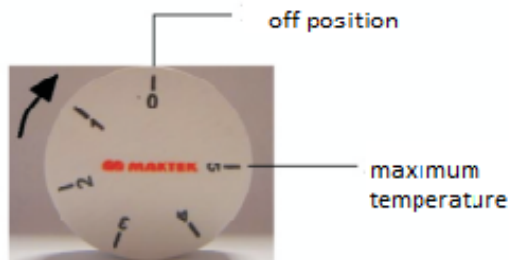


Figure - 1

Each switch controls 2 resistors on the left and right of the radiator separately. If desired, a single resistor can be left in the circuit.

Then turn the temperature control knob clockwise as shown in Figure-2.



picture 2: temperature setting button

Bring it to a level you want and leave. It is stated in Table 2 that which radiator temperature corresponds to which of 5 different levels.

Level	Oil Temperature
1	15 °C
2	30 °C
3	45 °C
4	65 °C
5	80 °C

Table - 2

When the temperature of the heat transfer fluid in the radiator reaches the set value, the heating operation stops. The heating automatically resumes when the temperature of the liquid has dropped to 3 ° C. Therefore, the radiator is operating at the optimum energy consumption required to meet the heat loss of the environment in which it is located.

## PROBLEMS AND SOLUTIONS

### RADIATOR DOES NOT GET WARM

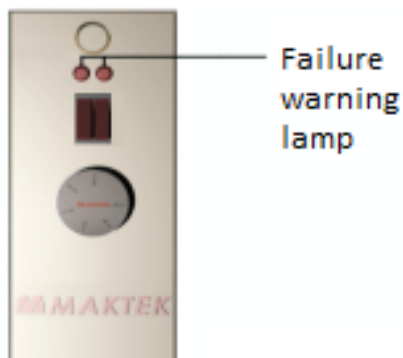
**1-** Radiator may not be receiving electricity. Be sure of the electrical connection. The fuse might have been thrown out. If the fuse blows, always unplug the radiator.

**2-** The thermostat may be set to a low temperature level at " 0 " in closed position. turn the temperature setting knob clockwise to set the temperature to a higher level.

If the problem still persists, contact MAKTEK AUTHORIZED SERVICE.

### SAFETY THERMOSTADS

There are two safety thermostats in the radiator set to 100 ° C. These thermostats cut off the heating circuit at 100 ° C fluid temperature in case of overheating of the radiator, resulting in a constant current flow to the resistors due to any reason. In this case, each of the red warning lamps located at the top of the control panel illuminates when the safety thermostat connected is off.



**WARNING:** The commissioning of the safety thermostat means that there is an overheating and a serious problem in the system. If you notice that one of the fault warning lamps is on, turn off the radiator immediately, remove the plug from the outlet, and consult the MAKTEK AUTHORIZED SERVICE.

## **SUGGESTIONS FOR ENERGY SAVING**

**1-** Many factors such as the environment and climatic conditions, the size of the space where the radiator will be used and the state of isolation and the installation method of the radiator are effective in achieving the expected efficiency from the radiator. Do not forget that; the energy consumption of the heating appliance you use is proportional to the size of your home heat loss. The more heat loss from your home to the outdoor heat, the more energy the heater will consume to compensate for this heat loss. Buddha reveals the importance of isolation. The heat loss of a modern building, in which the roof, outer wall, windows and doors are well insulated and various sealing measures have been taken, falls at a rate of up to 50%. This is returning to you as lower heating costs.

**2-** Unlike what you might think, running a heating device continuously is much more economical than running at night and closing during the day. If the device does not work for a long time, the temperature of the room will decrease much more and the appliance will work more to bring the temperature of the room to the desired level of comfort. Instead, if the thermostat is set to a low temperature level and the device is operated for a longer period of time, a more efficient and economical heating will be provided since the room is kept at a certain temperature.

**3-** Place the radiator on walls with windows if possible. This provides a more efficient heating since the cold air from the windows is broken.

### **TAKE CARE ABOUT OVERHEATING !!!**

**4-**Room temperature should be kept at 20 ° C. Keeping the room temperature at 1 ° C saves up to 6% in heating costs.

**5-**The tops and fronts of the radiators should not be closed for aesthetic purposes and should not be obstructed by furniture, curtains and fittings. In this case, the heat does not spread in a homogeneous manner and causes increased energy consumption.

**6-** Keeping curtains closed provides energy saving at night. is covered to keep the Close your curtains when the sun is out of your windows. Close these windows with blinds and windshields if you have, at nights.

## HEAT TRANSFER LIQUID TECHNICAL SPECIFICATIONS

The heat transfer fluid used in the Maktek electric radiator is resistant to oxidation even at very high temperatures (max 350 ° C) thanks to its additives. It is not corrosive, toxic and does not require **renewal**.

TECHNICAL SPECTS	TEST VALUES	TEST METHOD
Viscosity ( 40 °C, cSt )	32-35	ASTM D 445
Density (15°C, gr/cm <sup>3</sup> ,typical)	0,875	ASTM D 1298
Fire point ( °C )	Min 220	ASTM D 92
Yield point ( °C )	Max - 10	ASTM D 97
T.A.N ( mg KOH/g )	Max - 0,1	ASTM D 974

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